

HOW SICKNESS WAS PREVENTED AT JOHNSTOWN.

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## HOW SICKNESS WAS PREVENTED AT JOHNSTOWN.

BY GEO. G. GROFF, M. D., LL. D.

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**I**N a moment Johnstown, Pa., was destroyed. In less than fifteen minutes, the cruel, resistless, destroying wave came and passed, having leveled the busy mart which supplied the wants of 30,000 people; and in the same brief time, at the very lowest estimate, 3,000 human beings perished, and 5,000 more were rendered homeless. Ten million dollars worth of property was destroyed, and where a few hours before had stood beautiful towns and villages, was a desolate waste covered with broken houses, furniture, forest trees, carcasses of domestic animals, dead bodies of human beings, boulders from the mountains, sand, mud, slime, all in inextricable confusion. It is not possible for pen to describe the condition of the Conemaugh Valley after the waters receded.

In some places, as at Woodvale, the whole town was obliterated and nothing but a plain of clean sand and coarse gravel remained. At Franklin, the town disappeared, and the river changed its course so as to form a new channel where the town had formerly stood. At Johnstown, the mighty wave divided into three great branches, each of which swept forward like a besom of destruction leveling every thing in its course. Where on the higher ground the houses were not absolutely destroyed, they were filled with mud and slime, in some cases to the third story; while the yards, streets, and alleys were filled with trees, broken timbers, and other débris to the second stories. No house which the water entered was left fit for human occupancy. The mud was everywhere; many human bodies had lodged in the cellars, and dead horses even were found in the parlors of private residences. At Millville every house, except the school-house, was demolished and carried off. At Kernville, a great reflex wave, twenty feet high, was hurled back from the stone bridge, and picking up in its course the frame buildings of the inhabitants, broke them up, overturned and mixed them together in the most complex manner, and burying in the wreck hundreds of human bodies. Some frame houses, escaping de-

struction, floated with their occupants probably not less than two miles, and then came to rest in a secure place, with all the inmates saved, but unfortunately this was not often the case.

To give an exact idea of the destruction wrought, the State Board of Health made a Sanitary Survey in June which reported the number of lost and homeless.

It is very difficult to ascertain the exact loss of life. The earliest estimates placed it at about 10,000. The Board of Inquiry, after a very careful study of the lists of survivors, placed the loss at 6,111. Later a census taken for a local directory fixed it at not less than 3,500. However, less than 3,000 bodies have been recovered, and though there is reported a list of 400 missing it is now thought that the loss of life is between 3,000 and 3,500. Bodies were recovered almost daily until December the 1st, when the work of searching for them ceased. Yet near the close of November, as many as four bodies were found in a single day.

The loss of property as reported by the Committee of Inquiry on August 16th, was \$6,698,887. This is exclusive of private corporations, borough, school, and church property. If these latter items are included the total money loss will not be far from ten million dollars.

To relieve the unfortunate inhabitants of the devastated valley, contributions of food and clothing, and medicines began at once to flow in from all portions of the world in unprecedented volume. The contributions of money amounted to about \$3,600,000, and are still being reported, while of clothing, bed clothing, food, medicines, and other necessities of life to the estimated value of \$400,000.

Organized bodies of men began to arrive on Saturday, the day following the disaster. They came at first on foot and by private conveyance, until the railroads were re-opened, when from all the neighboring cities and towns, they came by hundreds and by thousands. Men and women offered their personal services from Maine on the east and from



Kansas on the west. By Saturday night, with few exceptions, the survivors had all been fed and clothed and put into dry garments. There were, however, persons found alive in the wreck on the *Thursday and Friday following the disaster*.

To fully comprehend the cause of so great destruction, and the difficulties of the work of clearing the wreck, it is necessary to understand something of the geography of the region. The district which has become known to the world as "Johnstown" consists of some thirty boroughs and villages along and on both sides of the Conemaugh and Stony Creek Rivers, and mostly near their junction. The total population as determined by a census taken just before the flood was about 30,000. The population of the flooded villages was 26,326.

The river valley is very narrow and as a consequence wherever there was a small level spot, there a village sprung up. After the flood, the bridges were all gone, and the narrow roads connecting the different towns were found to be utterly impassable. Hence, while the waters remained high, communication was had with the different places with the greatest difficulty, and these difficulties were increased because the work of relief was largely in the hands of strangers who could not locate the different places when one of them was reported to be in need of any thing. This condition of things lasted for more than a week and was finally relieved by the erection of a number of pontoon bridges by the United States Government.

The cause of the disaster was the breaking of a dam on the South Branch of the Conemaugh, and some ten or twelve miles above Johnstown, and two miles from South Fork village. This dam was constructed of loose earth and stones. It was about 400 feet long, 72 feet high, 72 feet wide at the base, and 20 feet wide at the top. There was no stone work in the dam, the sides were not protected in any way from erosion, it was simply a great embankment of earth. The area covered with water was some 500 acres. As a safety-valve there was a sluice way on one side of the dam. However, after the lapse of years men grew careless, the sluice way was closed with wire gratings to prevent the escape of fish in times of high water, and it is reported that the center of the dam had settled a number of feet. Then after nine years came the unprecedented rain-fall of May 30

and 31. For the 24 hours preceding the breaking of the dam, this fall equaled 8 inches, an amount most phenomenal. The waters arose, flowed over the breast, and in a short time this gave way, with the terrible result known to the world.

Few of the people had ever seen the dam. It was in the mountains away from the public highways; moreover, it was on private property, to which the general public did not have access. Those who did know its nature recognized their danger, but the number of these persons was very small, and they did not invoke the aid of the law.

When word was dispatched that the dam was breaking, word was sent to Johnstown, but there were *nineteen other towns* in the track of the waters also; moreover, at Johnstown there was a flood of no less than *ten feet* of water in the streets nearly all of the fated day. News could not be sent over the town. If it had been sent, the people could not have escaped. If the dam had broken at a time of low water it would have done comparatively little damage. It had so broken once or twice, and this also reassured the residents who knew these facts.

The waters of the flood before the dam broke arose to such a height for two reasons: (1) The natural narrow channels of the Conemaugh and Stony Creek had been filled up with cinders from the iron works and with other rubbish; (2) the waters were impeded at the stone railroad bridge which is below the junction of the two streams. This bridge is built of seven arches, but three of these have been filled in with cinders and earth, leaving only four arches to transmit the waters. Under one of these arches passes a street railway. On the day of the flood a small log boom up the Stony Creek had burst and the logs and a dislodged bridge greatly interfered with the passage of the waters. It is a fact of interest, however, that up to the time the dam broke, but a single life had been lost in the valley by drowning, and this was the result of carelessness.

#### WORK DONE BY THE STATE BOARD OF HEALTH.

The work of caring for the living and the rescuing of dead bodies was at once begun by the survivors at Johnstown, and the other villages, under the direction of a citizens' committee, aided by the relief corps which came in from the surrounding country and



towns. Later, the direction of affairs passed into the hands of the Pittsburgh Relief Committee, but finally all the work of relief was turned at once to the state, under the direction of the State Board of Health. On June 7 Johnstown and vicinity was declared a nuisance prejudicial to the public health, and sanitary work was formally undertaken by the state and continued until October 12, during which time from 500 to 3,000 men and several hundred teams were employed at a total expense to the state of about \$400,000. As the State Board of Health receives but \$2,000 a year from the legislature for sanitary work, it became necessary for the Governor to secure the large sums needed, which he did with promptness. The work of clearing away the wreck was done under the direction of the Adjutant-General of the state who acted as the Governor's agent.

In the course of this work the state assumed the recovery, care, and burial of the dead. This work was done with great care and propriety. All carcasses of domestic animals, estimated at 2,000, were burned as soon as possible. Free transportation was furnished to all flood sufferers who desired to leave the place for a time, and to hundreds who came to labor in the different relief corps. All the débris, trees, houses, logs, etc., encumbering the streets, was removed in the search for dead bodies, as also much of the sand and mud, which in places was from six to ten feet deep. The mud was also cleaned off lots where numbers of dead bodies were lodged. Great quantities of disinfectants were constantly used wherever it was thought they would be of value. On one day orders were given for \$10,000 worth of disinfectants. Numerous depots were established in every devastated district for the free distribution of these disinfectants, and for the instruction of the people in their use. Their liberal use was of great value in re-assuring the people that something was being done for their preservation.

About one hundred public privies were built and daily disinfected. These when abandoned were thoroughly cleansed and the pits disinfected. All the camps of citizens, laborers, and soldiers were daily inspected and kept in good sanitary condition. The water supply of the whole district was kept under daily surveillance and frequent analyses were made. Dangerous wells and springs when discovered were closed. About 1,300

cellars were cleaned and disinfected. It was at first thought that the citizens could do this themselves, but later the state undertook the work. Many dead bodies were found in cellars. The beds of the rivers were dredged and cleansed to an extent sufficient to permit the sewers to discharge freely. The mouths of many of these had been silted shut. The peace of the region was maintained by several companies of the National Guards of Pennsylvania. The number of these men present varied from 400 to 100. These relieved the district of the necessity of large bodies of local police. For one month all liquor licenses were suspended, and during this time the order in the whole region was nearly perfect. This much cannot be said after the sale of intoxicants again was permitted.

A careful and exhaustive sanitary survey of the whole devastated region was made at an early date after the disaster. This survey showed for each house not destroyed, the number of rooms in the house, the number of families in it, number of males, females, and of children; the condition of the cellar, kitchen, living rooms; the source, condition, and amount of the water supply; the drainage, the privy, yard, stable, and surroundings of the house.

Some of the statistics of this survey may here prove interesting. There were found 2,665 houses remaining in a habitable condition or soon to be re-occupied; 18,602 persons were found living in the devastated district against 26,326 before the flood, a loss of 7,724. The rooms to each house averaged 5.2; people to each house, 6.8; people to a room, 1.3. The minimum number of rooms to a house was 4.2 in Conemaugh. The maximum number of people to a house was 8.4 in Moxham, and the minimum in Ninevah, 4.9. Neither of these places suffered in the flood. The minimum number of people to a room was .8 in Ninevah, and the maximum 1.6 in Woodvale. It was believed that most of the people were supplied with mountain water drawn from the hydrants, but the survey showed 1,783 houses supplied with hydrant water, 671 with well water, and 211 with spring water. It may be remarked that most of the sickness during the summer was among those who used the water from wells and springs. Four hundred eighty-one cellars needed immediate cleaning, and 253 privies were found in a very bad condition. The number of sick persons found was 193 or only



one per cent of the population. Of these cases, 54 were measles and 7 consumption. Only three cases of nervous prostration were discovered by the inspectors while making this survey. The whole showing of the survey after the great exposure is certainly wonderful. At one time, a few days after the flood, there were actually more physicians present from a distance than there were patients; but at that time, people who had been sick for weeks were walking about as though well, the intense mental strain keeping them up.

The whole region was divided into ten districts and over each of these a local physician was placed as inspector. He reported daily and was given to understand that he was held responsible for the general good health of his district. There was also an inspector of camps and of morgues and burial places. These, too, reported daily. The inspectors reported each night the need of food, clothing, shelter, medicines, and medical attention, if such existed, and each received early the next morning his orders for the day. In this way, the State Board of Health knew each evening the *exact* condition of affairs in the valley. Notwithstanding the assurances given to the press that the general health was excellent and no signs of any epidemic sickness could be discerned by the Board of Health, a number of daily journals, which had a large circulation in the region, published very exaggerated accounts of the sickness present, and that the whole region was threatened with pestilence which doubtless would follow the flood. These statements appearing for several days, and each time in a more exaggerated form; the people were becoming alarmed, and it became necessary to issue bulletins from time to time, which stated the exact condition of the public health. After a few of these had been issued, the papers ceased their dangerous course.

Besides the health bulletins the Board issued from time to time circulars of information to the people, giving them instruction as to what should be done to preserve health in the great emergency. These were kindly received, and the directions generally followed so far as was found practical.

The country below Johnstown also needed protection, and for this purpose the river was patrolled on both banks down to the Ohio line. The drift piles were torn open, human bodies were rescued, and the carcasses of domestic animals were burned. The work of

the state was completed by the commission which the Governor appointed to distribute the vast sum of money which had come from all portions of the world for the sufferers. This last work was a most difficult one, and has not yet, December 1, 1889, been completed.

#### AIDS TO THE STATE WORK.

In the work above enumerated, the state received great aid from the citizens of Johnstown who forgetting the loss of property and friends, fell bravely to work to re-establish their homes; also from the thousands who came in the relief corps; the railroads, the Western Union Telegraph Company, the manufacturers of disinfectants, the United States Government, by sending its pontoon bridges and disinfectants, the State of Ohio, by sending tents for those without shelter, the Health Departments of Pittsburgh and Allegheny, the Children's Aid Society of Pennsylvania, by caring for all orphans, and especially by the Red Cross Association which at all times stood ready to care for the sick and suffering. The writer in behalf of the State Board of Health cannot commend too highly this society to all who may desire to relieve the suffering; except for its agents at Johnstown, there would have been much more suffering than there was.

#### THE RESULT.

It is the province of a Board of Health so to modify unsanitary conditions, as to preserve in so far as this is possible, the general good health of the people. In the Conemaugh valley, to this date, this work has been accomplished to an eminent degree. Although typhoid fever, diphtheria, and measles, existed before the flood, these diseases never spread and never became epidemic. Even the sickness which would reasonably have been expected to appear from the great exposure to wet and cold, and from great mental strain, appeared in many less cases than was anticipated. Some of the worst cases of sickness occurring in the valley during the past summer were in the villages which were not devastated. The people were crowded, not all well sheltered, subject to the changes of diet and to great distress, and yet bore up under it all most bravely.



#### LESSONS FOR THE FUTURE.

From the standpoint of the sanitarian, and from the experiences at Johnstown, what are



the matters to receive attention when great national calamities have occurred? These may come from pestilence, fire, earthquakes, floods, famine, war.

In the past, pestilence too often has followed these great calamities of the human race. To-day sanitary science stands ready to prevent pestilence. How? 1. The whole region must be divided into convenient districts and over each a competent sanitarian (best a local physician) must be placed, and he must be held accountable for the general health of his own district. He must report daily the condition and needs of the people in his district, and not fail to note the need of food, clothing, shelter, and medical attendance, if such need exists. 2. The dead must be gathered and buried as speedily as possible. For the purpose of future identification careful descriptions should be taken, and the bodies buried in their own clothes, that identification may be practical on disinterment. Morgues and burial places must be in charge of a competent sanitary inspector. 3. A liberal supply of disinfectants should be ordered at once, and freely used, even early after the disaster. The moral effect of disinfectants is good. 4. The drinking water should be examined at once, and kept under constant surveillance. At such times polluted waters cannot be tolerated. 5. The district may be partially depopulated, by offering free transpor-

tation to the women and children. 6. The sewers, if in a town, must be carefully examined, and if closed, must be opened, and if possible flushed out, else foul gases escaping may seriously pollute the atmosphere. Privies and water closets must be built and daily inspected and disinfected. 7. A careful and systematic sanitary survey of each house in the district should be made, and all in an unsanitary condition condemned, and the owners be compelled to purify them. It may be necessary to remove temporarily the whole population from the town to a more healthful location; in which case, the people should be sheltered in tents. The camp should be laid out in military style, and must be under the daily inspection of a competent sanitarian. 8. Health bulletins and circulars of information from time to time may be issued to reassure the people and to direct them in doing those things which will best preserve the general health. 9. Hospitals must be established at once, and at least one hospital for contagious diseases, all cases of which should be isolated at once when discovered. All physicians in the district should report daily all their cases to the health department. 10. The Board of Health must be prepared to meet every emergency as it may arise. To be thus prepared it should have at its disposal, men, money, and medical stores without stint.

## THE POETRY OF THE CIVIL WAR.

BY MAURICE THOMPSON.

### NORTHERN AND SOUTHERN.

IN one of his essays Emerson says, "If your subject do not appear to you the flower of the world at this moment, you have not rightly chosen it." In time of great popular excitement when the blood of the people is at fever heat, the poet's imagination is apt to choose rightly. It is said that all the world loves a lover; but the thought is not fully rounded without adding that all the world doubly loves a good fighter. When the imagination is highly wrought, the fighting humor is not far away; love and war touch elbows as they walk. Love songs and war songs are very closely related and are found associated in every literature of the world. From the songs of the old Bible

down to the fine lyrics of Whittier, Tennyson, and Béranger, the tender passion has found a place close beside the dark and terrible instinct of fight. As a rule song birds are a pugnacious race, half their lives given over to melodious wrangling. It is a large part of the value of imagination that it preserves the picturesque at all hazards and by any means. If genius cannot fight, it will feign fight and simulate all the intense passion and savage emotion of the hero who rushes to battle for mere love of slaughter. If the poet cannot love, he will assume the rôle of lover and outdo the lustiest swain in the world bellying of jealousy or whining of despair, all on account of some imaginary Barbary Allen or Annie Laurie. In a word, to love and to

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